

Specification for Assembly of the D0 L1_Hybrid

The hybrid is to be constructed of alternating thick film layers of gold and dielectric built up onto a Beryllia substrate. There are six conductor layers and five dielectric layers on the top side. The layers are defined in .dxf format and accompany this specification. The gold bond pads on the top layer must be aluminum-wedge bondable, and pads for the capacitors, resistors, and connector must be solderable. Layers of dielectric may be added to the back side of the substrate in order to keep the finished hybrid flat to within 0.05mm. A specification of the final back side dielectric layer is also provided along with this document. This layer facilitates controlled epoxy runout when the hybrid is bonded to the silicon sensors. This protrusion should also be flat to within 0.05mm. Total thickness of the finished hybrid must not exceed 0.9mm. Thickness of the metal trace layers is to be 7 to 9 um. Ground and power plane layer thickness is to be 4 to 6 um. Dielectric layer thickness is to be 30 to 60 um. The dielectric strength is to be 650V/mil or better. Laser cutting of the final outline should be accurate to +/- 2 mils; the two notches will have a 10 mil radius at their corners.